

STATOTHR

MEMORANDUM

11 September, 1975

TO: William Carey, Co Chairman, Subcommittee on Policy
Studies of Research Management.

FROM: [REDACTED] STATOTHR

SUBJECT: Visit to the USSR, August 17 - 20, 1975.

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[REDACTED] and I spent two and half days in Moscow in August visiting institutes and discussing science policy at the State Committee. I attach three relevant reports. The first, of September 9, is a general report summarizing our visits.

The second item is a brief report on our visit to the State Committee emphasizing discussions which related to the ongoing joint program.

Finally, I enclose a copy of my own notes of the visits.

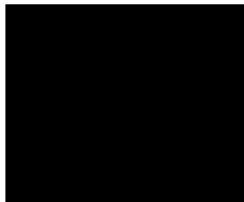
Conclusions from these visits must be regarded as tentative. In particular, it is virtually mandatory that someone visit the management groups within the Academy Nauk and the State Committee which supervise these two large research institutes, the Lebedev and the Kurchatov. Even so, it may be useful to give a few tentative conclusions.

Management of these institutes seems to be a good deal less directed and sharp than is management of comparable U.S. facilities. There seems to be much less in the way of sharp development of objectives, establishment of time-scales, evaluation of progress, etc. Also there seems to be substantially less use of budget-making as a method of analysis and control. Indeed report-writing seems to be substantially less than for the U.S. Internal stability in the laboratories seems high. Most professionals are brought up in the system and the turnover of professionals is apparently very small. Many senior professionals participate in university teaching programs, but there seems to be relatively slight linkage to industrial ministries or industrial facilities. Particularly in the Kurchatov Institute, knowledge of U.S. institutes and management

procedures seems good, as is an awareness of the differences between the U.S. and the USSR procedures.

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MEMORANDUM

September 9, 1975

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FROM:

SUBJECT: Report of August 1975 Visits to the USSR on Problems of Research Management

The two of us spent August 17, 18, and 19 and part of August 20 in the USSR assessing questions of research management as they relate to the activities of the joint U.S.-USSR study effort on science policy. [redacted] interest in the latter stems from his position on the joint commission, but he has long had a specific interest in research management. Long is a member of the sub-commission on research management of the joint activity.

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We did not see Skylarov of the State Committee, who, along with [redacted] of the U.S., is co-chairman of the joint sub-commission, but we did see members of his staff. More importantly, we visited two institutes, and in each had extensive discussions on research management. Both are major institutes. One, the Lebedev Institute, is devoted to fundamental research in physics, and reports to the Academy Nauk; the second, the Kurchatov Institute, focuses on relatively more applied nuclear energy problems and reports to the State Committee. Both institutes are of the highest standing. Both are large: the Lebedev has about 3000 employees total, and the Kurchatov about 5500. At the Lebedev we talked with Academician Cherenkov, a Nobel Prize winner, and Academician Vul, both of them section chairmen in the Institute. At the Kurchatov we met with Academician Evgenie Velekov and three people from the State Committee for the Utilization of Atomic Energy, including in particular G. B. Miakinkov, deputy head of its foreign relations department.

The questions we asked related quite directly to research management of the Institute. The questions included:

How are budgets constructed?

Are separate budgets developed for salaries, equipment, and capital and buildings?

What about foreign exchange?

What kinds of budget documents are submitted?

What portions of the budget are fungible ?

Are there any contract activities by the Institute?

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Management structure was another general topic of questioning, asking about the structure overall, the autonomy of senior scientists, the role of committees, the resolution of disagreements.

Another set of questions dealt with program planning. How does it relate to the budget? What is done about mid-year add-ons? Who makes decisions to start new programs? What is the definition of a project and how is it started? How much flexibility exists in carrying out programs?

Another set of questions dealt with promotion decisions for the staff, i.e., who makes them? What background material? What use of outside opinion, i.e., advisory committees?

Similar questions were asked about hiring.

Another group of questions related to the scientific-technical evaluations. One important set of evaluations consists of technical programs and of progress. The second evaluation area concerns scientists. For all of these the question is who makes the evaluations? How formal are they? Who resolves disagreements? And if programs are abandoned or scientists discharged, how is this done?

We asked about report writing, to whom and how frequently, how much administrative and how much technical. We asked about role of visiting committees. We asked about the character of linkages, i.e., to the Academy, to universities, to the State Committee, to industry, etc.

In all this we kept in mind a number of specific questions which the U.S. had asked about the topic, and the answers which the State Committee group had given.

It was interesting to find that in spite of their different nature and in spite of the fact that the Lebedev reports to the Academy and the Kurchatov to the State Committee, the management procedures and characteristics of the two Institutes were closely similar. Each institute has been dealing with an approximate staff "freeze" for the last several years, so that new programs must be considered in the light of this. Each institute has grown used to a budget increase of from 5 to 7% each year. Salary budgets for each are fundamentally separate from those for equipment and capital needs. These latter are in many cases fungible; although this is not true for certain important and explicitly labeled projects of a "big science" character, as for example the laser-fusion work at the Lebedev and Tokomak 10 at the Kurchatov. In the overall management of the operation, there is a good deal of autonomy of the major groups and the senior scientists. In each institute,

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and at two or three levels, Science Councils are exceedingly important. They make recommendations to the director on programs and on people. Reports on progress are made by scientists to the Science Councils. The final decisions are the director's, but apparently this advisory role is crucial.

Dealings with the Academy and State Committee tend to involve a minimum of report writing, budget preparation, and the like. As Velekov noted, this is in strong contrast to the U.S. Apparently, budget decisions are made with relative informality, as are decisions about proposed add-on programs. (It will be important to check this point out with the Department of Finance of the Academy Nauk, and with the group under Petrenko in the State Committee, to which the Kurchatov Institute reports.)

Promotion decisions are essentially based on recommendations of the science councils. Not much use appears to be made outside advisory committees or outside opinions, although outsiders are sometimes invited to the Science Council. Questions of promotion and of non-promotion are also essentially based on recommendations of the Science Councils. As this implies, there is not very much role for outside visiting committees in these activities. Nor does there seem to be very much in the way of formal report writing about the results.

This same informality appears to entail for scientific and technical evaluations of programs and of progress within programs. Again, the role of the science councils seems to be highly important and difficulties are bucked up finally to the director.

There is only a very modest amount of contract work done by either of the institutes, i.e., work paid for by other agencies than the supporting one. Lebedev estimated that it might do in the order of 10% of its work by contract. Kurchatov implied a smaller percentage.

Staff members do relatively little consulting for outside groups and what they do does not bring in extra pay. In contrast, academicians get extra pay and are also exempt from staff reviews, of which more later. Those people who hold teaching positions at universities can also get extra pay, apparently up to about 50% of their local salary.

The large percentage of new staff are brought into both institutes by bringing in quite young people still doing their education. Apparently it is common for a number of people, perhaps 20-30/year in each institute to come in before finishing their first degree (i.e., their A.B.) to do their diploma research in the institute. They also

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defend this diploma research in the institute. Some who do well are permitted to stay on as Candidates and work for what is the equivalent of their Ph.D. and ultimately to work toward their D.Sc. Thus, Cherenkov said that about 95% of the scientists in his group had been trained by him and promoted by this process. Velikov had much the same to say about the Kurchatov and noted that in his own case he went directly from his first degree to his D.Sc. taking 6 years in the process. This turns out to be an overall saving of time, however. Apparently it is unusual to bring senior scientists from outside into institutes. It seems also to be rather unusual to hire new Candidates from the universities and even speaking of Moscow University, their comment was that the Candidate students there were a large cut below the quality of the students hired directly in the Institutes to work for their Candidate degree.

Linkages to the Academy Nauk are quite close in the sense of scientific interaction. Each institute contains Academicians and these and other members of the staffs serve on various nationwide Academy committees for this technical subject or that. On the other hand, the Academy does not seem to play a large managing role even for the Lebedev. (It would be interesting, however, to get the Academy's view of this).

Linkages to universities are primarily by way of the staff members who hold chairs in universities or who in other ways do teaching for universities. This seems to be a valued activity and no doubt plays a helpful role in getting students.

Linkages to industry do not seem large even for the Kurchatov Institute. However, we did not explore fully the linkages between the Kurchatov and the State Committee for Atomic Energy. It is possible that this latter agency represents an important intermediary toward the industry-oriented ministries.

An interesting U.S. laboratory for comparison to these two is the Brookhaven National Laboratory of Upton, N.Y. This laboratory is about the same size as the two USSR institutes which we visited. It is the intermediate in its concern with fundamental science on the one hand and applied science on the other. By comparison to the information which we got on the Lebedev and Kurchatov, BNL of the U.S.A. is much more closely supervised and "managed" by the governmental group to which it reports, once AEC, now ERDA. It must spend much more care in developing its budget in detail and it must supply many more program details in reporting on its program activities and progress. Formal visits from the "Washington managers" are common and outside visiting committees

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are used by BNL as part of the evaluation procedure. On the evidence of our comparison the two USSR institutes seem to have a good deal more autonomy and seem to be a good deal less closely linked than is BNL either to their sponsors or to the users of their applied efforts.

In both institutes we were taken for brief tours of major facilities. At the Lebedev it was to the activity on laser implosion for fusion power which is a large operation in which neodymium glass lasers are used to produce pulses which are split and amplified until 12 separate high intensity short-duration light beams are brought in on a target. Even more interestingly, the Lebedev is in the process of developing a still much larger effort, to which an immense new facility is dedicated, which will permit 216 separate laser beams to be focused in on a single target. Work toward this large facility is progressing rapidly.

At the Kurchatov we were briefly shown two elements of their fusion energy experimentation. One was a close analogue to the laser fusion effort in which energy is brought on to an implosion target from electron beams. We were shown a prototype of a large electron beam accelerator and collimator and shown diagrams of the procedure whereby a number of beams from such accelerators would be brought onto a target.

The other large technical effort on fusion at the Kurchatov related to the use of TOKOMACKS which were initially devised at this institute. They are now working on TOKOMAK 10 which is to be much larger than anything hitherto and which is in a relatively advanced state. (Apparently the TOKOMAK under construction at the Princeton laboratory is of comparable size.)

In each of the institutes we explicitly asked for bulletins or other published information about budgets, program outlines, whatever. Neither had anything to offer us. The Lebedev people said that they are preparing a bulleting for their 250th anniversary which will occur soon, and they will be glad to send that to us. The state of mind about budgets is perhaps illustrated by the parting remark from Miakinkov of the State Committee for Atomic Energy who commented that he would be delighted if we visited him and he would be glad to furnish any information he could only "don't give me a heart attack by asking me for a budget." Quite evidently the Soviets do not use rubles as a measure of program size, progress, etc.

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in anything like the way the U.S. uses dollars. (A cynic could of course argue that the Soviet do use ruble evaluations and do use budgets and progress reports much as we do but that they are simply not made available to foreigners. Perhaps, but if so, Cherenkov, Vul and Velekov are extraordinarily good actors.)

Since our discussions at the State Committee were relatively brief, they did not add much to the topic of research management. It did seem clear that even at the higher level the State Committee depends strongly on Science Councils for recommendations for direction and for support of new programs. It also seemed clear that they too had considerable autonomy in use of funds once they had been allocated them by the Gosplan. Discussions with Petrenko to whom the Kurchatov Institute reports, will be very useful in furthering this look at research management.

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9 September, 1975

FROM: [REDACTED]

SUBJECT: Visits in the USSR on the topic of Research
Management, [REDACTED]
August 17 - 20, 1975.

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[REDACTED] and I arrived at noon on the 17th after a straight-forward trip over from the U.S. At the last moment we had learned that [REDACTED] would not be with us, so that only the two of us were on board.

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When we landed at Moscow, Pavlichenko and Emelyanov were waiting for us, as was the U.S. Science attache, Dr. Loebner. Loebner turned immediately to schedules and said that he had tried hard to make some arrangements at the State Committee for our proposed visits, but had been unable to do anything primarily because Skylarov was on vacation.

Pavlichenko told us that he and the Academy had turned to the question of visits for Brooks and Long, that they were not sure there would be any more than one on the first day, i.e. Monday, but probably a couple on the second. We said goodbye to Loebner but agreed to come to the Embassy and talk with him and the ambassador. We then came to town with Pavlichenko and Emelyanov. They saw us into the hotel and shortly thereafter introduced us to Valerie Shanini who was to be our guide and interpreter. The four of us, except her, had lunch at the hotel. It was a pleasant affair and gave us time to go over the schedule which was as follows: there would be time on the 20th for our proposed group breakfast. Meetings would start at the Academy at 11 a.m., go on to 1.30 p.m. with a break for lunch, resume at 3.00 p.m. at the Presidium and keep going until 6.00 p.m. or so. Thursday's schedule was to be identical to this. Friday was going to be a similar schedule, but the meeting would be at Arbatav's Institute of the USA. I asked what about a meeting at the Institute for World Economic Affairs and Pavlichenko responded that Inozemtsev was away on vacation as were some of his people and that this did not look possible on this visit.

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There was a brief discussion of evenings. [REDACTED] were told that they might get an invitation to have dinner with the Kapitzas on the evening of Wednesday the 20th. Otherwise, the evenings were free. There was brief discussion of the occasion of Vinogradov's birthday and we were told that the entire festivities would be at the Academy which seemed straight-forward. Incidentally the formerly appointed acting president of the Academy, [REDACTED] (his name to be

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obtained) is acting also. With these arrangements settled we then turned to our lunch. [REDACTED] were permitted a brief sleep, and our interpreter took us off to an evening program of folk dancing.

I should note that none of the papers which we had sent to the Soviet Union appeared to have come. The consequence is that we quickly gave Pavlichenko two copies of the [REDACTED] report and one of the GURC which was all we had immediately available; we also gave him four copies of the Rathjens counterforce comments.

Meetings on August 18th

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We started out August 18th by visiting the Science attache, Dr. Loebner at the U.S. Embassy. Loebner is a vigorous person who has been at his job only since December but is already deeply immersed. He sees significant difficulties on each side in the relationships between the NAS and the Academy Nauk of the USSR. On each side there are significant problems of bureaucracy. With respect to the exchanges, the USSR has tended to use young post-Docs in the Soviet Union who really don't learn much about the country. Similarly on the U.S. side the visiting groups don't make tight schedules and don't get problems handled in the way he believes they should. He mentioned specifically the visiting group under Pines on a Solid State study group.

Loebner thinks there are serious problems at the Academy Nauk, feeling that their bureaucracy is deep and that they are currently paralysed in decision making. He is afraid that they are going to lose out in their relationships to the US as compared to the State Committee for Science and Technology which is distinctly better organized, he believes. With respect to the Academy, he does not believe that Katolnikov who is currently Acting-President, will become President and he does not think that the current acting-acting, Fedoseev, has any chance. His bet is with Vasov or Obichinikov.

There was a brief discussion of a difficulty concerning Scrabine and Hammond which, in his judgement, was a case where "David Pines blew it." But more of this later. The problem here is that fundamentally, the Soviet feel very strongly that they must select problems and even people for exchanges whereas the Pines proposal did not give them this possibility. In other exchanges there are awkwardnesses because Nauk is particularly interested in fundamental research whereas the State Committee is more interested in applied. Loebner thinks highly of Kirillin who head the State Committee. He also thinks well of his ex-Institute for High Temperatures where the head, Chandelin, has brought the magneto-hydrodynamics effort, which is almost half their effort, into quite good shape.

Visit to the Lebedev Institute for Physics, August 18, 1975

Discussions were with Cherenkov and Vul (both heads of large laboratories) and a third man from the director's office. The Lebedev is old and famous, and, indeed, along with the Academy, will be celebrating its 250th year anniversary soon. For many years it was relatively narrow but was greatly broadened by Vavilov who was Director in the '30's who added new laboratories such as nuclear physics and cosmic-ray physics so that it became a major laboratory and later added "oscillatory physics", which is their name for laser physics, and radioastronomy.

The Institute belongs to the Academy Nauk and reports in to two sections of this: to physics and to astronomy. However, it operates with a single budget. Its areas of interest are covered by an explicit charter. It has three principal departments: oscillatory problems, mostly lasers with two laboratories, (Prokhorov is head); quantum physics with two large laboratories. One is run, incidentally, by Vasov, who is also Director of the Institute. The third area is general physics run by Nikovsky which has sixteen laboratories.

In all there are a total of 3,000 people of whom about 70 hold Doctorate of Science and about 300 a Candidate for Science. Each laboratory is divided into sectors and each sector may consist of two or three working groups presumably each linked to an individual scientist.

We asked about planning. Each year in making up a budget, programs are discussed within the individual groups and sectors. The overall proposals are then brought to the Scientific Council of the Institute which goes over them and forms a whole. Apparently this council which is mostly internal people with a few outsiders occasionally invited in is a quite powerful advisory element in the system. Budget figures relate particularly to the previous year with the normal expectation that there can be a 5 or 10 per cent increase each year. On the other hand, if some special facility is needed, that is treated in a somewhat special way. Final decisions on the budget are made by the Director who forwards it to the Academy. With respect to on going programs, i.e., ones that had been established in the previous years, the Director handles the budget quite directly. With respect to proposed new programs there are preliminary discussions with the Academy, perhaps all the way up to the Presidium to reach a decision as to whether they are appropriate for the Institute. We asked what was meant by a programming problem. They gave two examples. One was really a facility which consisted of the installation of a recording assembly of counters to detect very wide cosmic ray showers. From the standpoint of a research topic, Vul, who participated, commented on the problem of superconductivity of surfaces where excitons would be involved.

In the ~~approval~~ of the budget of the Institute, salaries are

treated quite separately, salary items are fungible within the salary budget but not transferable to other items. In recent years there has tended to be a constant number of professional research workers with numbers of technicians more flexible. The staff has been highly stable with very little tendency for people to leave. There is a separate budget for supplies and operating expanses with, as noted earlier, major facilities coming in still separately.

In answer to a question, it turns out that there is a possibility of the laboratory doing contract work for outside people. Normally this does not cover the salaries which are taken care of by the laboratory but cover additional equipment, perhaps technicians. On the average maybe 10% of their total effort is done via contracts. They are not enthusiastic about contracts since they tend to be somewhat confining and their principal interest is for fundamental work which normally tends not to be terribly interesting to applied ministries. Looked at from the standpoint of an individual scientist there is a great deal of autonomy in the laboratory but it is not complete. In particular the Scientific Council exercises a strong advisory role. Apparently if there are disagreements about relative budgets, new programs, etc. they first go to the Scientific Council for its comment with, then, decision by the Director.

Their stress is on continuity. They have close coupling with the universities and bring in a good many bright, interested students. Apparently new people will commonly come in toward the end of their first degree and will do their so-called diploma research within the institute, defending the work within the Institute. After they are formally awarded their first degree (A.B. equivalent), they will very probably stay on and do their thesis work in the institute also. It turns out that the majority of the current Candidates have, in fact, done their thesis work in the laboratory. For Cherenkov's own group this number is like 95%, i.e. it is almost entirely a group of his own students.

We asked about official reports that we might read for statistics and program details. Nothing seemed available but they will get something to us. The particular reason is that they will be celebrating their 250th year birthday soon and are preparing a large report for this.

Following these lengthy discussions the Lebedev group offered to show us a few facilities, and by consensus these turned out to be facilities for laser implosion studies. We went first to the existing apparatus which is similar in principle to that developed by Lubin of Rochester, but substantially larger. The general idea is to build short, perhaps nanosecond pulses of intense laser radiation at the appropriate frequency from a neodymium-glass laser. Each pulse is amplified in successive stages and ultimately split into nine separate pulses which brought simultaneously on to the implosion target. This is a very impressive and substantial apparatus which extends through three rooms of the Institute. We also went to the new facility for the same activity, which is very

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impressive indeed. It is in a very large room, with a balcony around for viewing, the kind of room which would be appropriate for a large accelerator. Various elements of the system are being assembled at the present time, including the target area where the implosion target will be present. The procedure builds extensively on the previous work. Similar laser pulses will be used, however, in the new facility there will be 216 separate pulses brought on to the target in groups of twelve. This is clearly a large and extensive operation. Because of its substantial applied characteristic, it represents something of an exception to the normally basic science orientation of the Lebedev.

Visit to the Kurchatov Institute, August 19th, 1975

TATOTHR [REDACTED] went out to the Kurchatov Institute along with our interpreter, the meeting having been arranged by the Academy. We were met by Academician Velekov and G.B. Miakinkov, the latter being Deputy Head of the Foreign Relations Department of the State Committee for the Utilization of Atomic Energy of the USSR. He plus one of his staff went through the entire briefing and visit. Velekov also had a young assistant with him. Velekov, incidentally, is one of the major program directors of the Institute and was subbing for the overall Director Alexandrov who is on vacation.

The Institute is a center for atomic energy work. It is involved in a major way in the nuclear power program. Its emphasis is fundamental work on nuclear reactors, on the associated physical property activities, on computer programs and also on test reactors for testing materials. It coordinates all of the fundamental work on reactors and this constitutes about a third of its effort. USSR is working on two kinds of reactors; a pressurized water reactor and a boiling water reactor using a tubular design.

They have done interesting things in fuel element technology but when it comes to any sort of production they transfer their information over to separate design organizations in industry with whom they work closely. They also worry about chemical processing and water chemistry. The breeder reactor is not their responsibility but they do have a program on high-temperature gas reactors.

Another third of their work concerns studies on controlled fusion, particularly with the TOKOMAK. They have some interest in laser fusion and work closely with Lebedev on this. They also have as part of their fusion effort an electron beam implosion procedure.

According to their analyses only a hybrid fusion procedure looks economical at present, i.e. neutrons from fusion are used to breed plutonium or uranium-233. The names mentioned were Rudakov for the electron beam work, and Kardomsev for the TOKOMAK work. The latter was Artsimovich's deputy once. There is a complete spectrum of fusion research under way in the USSR. There is

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a special institute, the Ephramiov in Leningrad, which relates particularly to design work on fusion and which reports to the State Committee. Also noted was a good deal of superconductor work relating particularly to the TOKOMAK.

The last third of their work is broadly in fundamental physics. A man by the name of Galalysky handles nuclear physics including superconductivity, a lithium ion cyclotron, etc. A man by the name of Kargon works on theory of solid hydrogen and theoretical problems. They have some theoretical biophysics. Once Dubna was a branch of their institute and now they work as one of the users of the Dubna accelerator. He notes that the charter for their work is not so tight as is typical of a US/AEC laboratory and they can therefore study a very wide range of plasma physics problems.

The laboratory is a large one, 5,500 people overall. It is primarily at the one site but there are a few satellite activities. They are an Institute of the State Committee for Science and Technology. Many of them individually are on commissions for the Academy and several are Academicians but the fundamental orientation is to the State Committee.

Because their charter is wide it is under the purview of several groups within the State Committee and they have individual dealings with these groups. With respect to planning their program, they have general discussions with the State Committee and then planning is done by the separate groups and ultimately brought to a head in the director's office.

As in other institutes, salaries are taken care of separately and the salary funds are not fungible, i.e., they must be used for salaries only.

The Kurchatov has been going for some years with a virtually constant-sized professional staff. Hence, new programs mean restructuring of old. They contract out a good deal of their support needs and specifically in the recent work on their latest major facility, the TOKOMAK 10, they have contracted out for a good deal of the design. In answer to a specific question, their staff size five years ago was about 5,500. Still a different point is that some of their new programs are likely to have to go outside of Moscow as part of a broad decentralization move in the USSR. There is some indication that there will be a large next-generation TOKOMAK and it may go outside Moscow.

The laboratory's Scientific Council is a key element for decision making and for settling disputes and making priorities. The Council is almost entirely internal but outside people are invited in from time to time. The Council is in effect advisory to the Director and he, working with the State Commission, makes the final decisions.

In answer to a question it turns out that the Institute does not do very much contract work, probably no more than 5% or 10% and that for some industries and other Institutes.

There is moderate autonomy for the major scientific people at the laboratory. The interface with the State Committee is important. On the other hand, there is a relatively small amount of paper writing involved in this interface. Decisions are much more likely to be taken by discussions. Scientific Councils exist at various levels below the central Council, i.e. each of the major units has one and so, apparently, do the individual laboratories.

In answer to another question, it was the strong impression of Velekov that there was more development of new projects by individual scientists than in the U.S. In other words, even if this is a more or less applied institute, the role of the local staff in generating projects is large. Incidentally, there have been a great many interchanges between people working in this Institute and U.S. laboratories so that knowledge of U.S. practices appears to be good.

There are modest links of the institute to universities, especially to Moscow University. Many of the senior staff hold chairs in the universities. Their utilization of young people in the laboratory during their student days is extensive, just as it was at the Lebedev. Selected young people come in to the Institute and do their diploma as part of their first degree within the Institute. Some of these same students then go on to work as Candidates. Velekov himself was one of these young students. He noted that he did not stop at the Candidate level at all. He spent six years on his thesis work and then applied directly for a D.Sc. degree, which he holds. His comment was that this was more efficient than taking first the Candidate and then the D.Sc. degree.

There seems to be relatively small movement of staff, i.e., there is great stability within the group. There appears to be little tendency to look for senior staff outside the Institute.

In answer to a question, promotion of scientists relates primarily to their capability in local programs. Decisions involve the Scientific Councils and sometimes there will be particular examining committees set up. Younger people are examined every three or four years in a rather formal way.

The Scientific Councils also have responsibility to look at the progress of the technical and scientific programs at the laboratory. Returning to the question of promotion; for the intermediate age scientist, the final decision in the Scientific Councils are made by secret ballot. People, who have become Academy members, are excluded from this three-year review however. Even so, staff evaluation is a major activity and something like 100 of the staff are reviewed each year for promotion.

With respect to reports on planning it turns out that relatively little is done in the way of annual report writing.

With respect to linkages, the important linkage is to the State Committee. There are, however, pretty good links to industry, particularly the nuclear power industry. However, there is no formal consulting done to these groups and no extra pay for consulting. Those members of the Institute who also hold appointments to the universities are, however, paid extra.

In answer to a question, it turns out that they do not have a published budget. Apparently their budgets have been going up something between 5% and 7% a year but with a number of peaks because of large facilities.

I asked whether they hired many new Ph.D.'s from the universities and their response to this question was that in their judgement the calibre of graduates from the universities was substantially lower than the selected young people they train themselves. Hence, only occasionally will they hire someone from a university. They have an internal examination system which they use in their hiring. The number of new people brought in is small; no more than twenty or thirty young people are brought into the Kurchatov each year. They have a problem of what to do with the not-very-successful people and the normal practice is not to fire them, but to stop promoting them and announce to them that this is true and so ease them out. Apparently the reputation of the Institute is such that these people can get pretty good jobs outside.

In view of the fact that the State Committee is the head agency for the Kurchatov Institute, it will be very much in order to send some written questions to them about the Kurchatov and indeed it is quite possible that a real attempt at a second round of questions stemming from their first answers would be desirable.

Visit to State Committee, Moscow

STATOTHR

On the morning of August 20, [REDACTED] spent an hour and a half at the State Committee for Science and Technology. Skylarov was away. We were met by two of his people, V.P. Axilenko and Alexander Metalnikov, accompanied by Nikiti L. Dvoretz, Chief of Secretariat, Soviet Part, US/USSR Joint Commission on Science and Technology.

We stated that we had two very different goals in wanting to talk with the people at the Secretariat. The first goal was to discuss further our joint activities specifically in the area of research management; the second goal was to ask them specific questions about the management of institutes from the Soviet side with particular reference to the Kurchatov Institute which we had just visited.

On the first of these, I went through the current situation on joint report writing activities as I saw them and in particular, I listed the topics of the case studies which the U.S. side has in mind and also the titles for the short analysis reports which we plan. The principal spokesman on their side was (I think) Valentine P. Axilenko of the Foreign Relations Department, State Committee, whose card lists the same Telex number on it and who lists two telephones; 229-22-36 and 229-20-00. He stated that he had accompanied Skylarov on the last visit to the United States and was aware of the character of the planned activities. At the same time, he wrote down the titles of the planned U.S. papers, etc. I then went into what we were planning to do on the case studies. I passed on a Dorothy Nelkin book as an example of something done at Cornell and also passed on the translation into Russian of the checklist which we had developed on items of significance for a case study. Dvoretz asked for the English original also saying that sometimes there were subtle differences in words and it was therefore useful to have both languages, so I gave him the English. After some further discussion of these activities and a generalized offer of collaboration and "keep in touch" from the U.S. side, we shifted to our visit to Kurchatov Institute and some of the questions about management which had arisen. Among the things said were the following.

Within the State Commission the allotment of funds parallels quite closely the development of the five-year plan. On the other hand there are methods to accommodate new ideas in that the State Commission does have some flexible money which it can use for add-on programs in the area of science and technology. Fund requests are forwarded from the Committee to the State Planning Commission which makes final decisions on financial allotment. With respect to advice, their comment was that for institutes in general the analyses of the Academy Nauk were very important, and that, in particular, the very powerful office within the Academy was the Finance Department, which had a good deal to say on the analysis of funding. Rather generally, it appears that they lean heavily on activities of Scientific Councils. One such exists in the State Committee and interacts with the councils of the institutes themselves.

At the Academy Nauk, a Mr. Gervitz of the Finance Department, would be an important man to talk to to understand the details of financial activities. (Apparently there is a similar office in the State Committee).

The Scientific Council of the State Committee itself turns out to have on it representatives from several ministries so that a decision made by it is in a sense a government-wide decision. If their decision on an add-on project is positive, it then goes with their recommendation to the Department of Financing.

It was noted to us that the coming meeting of the Commission in Moscow in October would be an excellent time to get more detail answers on a number of these points and that people now

on vacation will be back and present.

STATOTHR [redacted] raised the question about possible conflicts that might occur between Gosplan and the State Committee where the approval of each seems to be needed for a project. The answer was that funds are normally allotted in large budget units to the State Committee, which can make its own decision on use of the funds which come in. Put another way, the normal monies of the State Plan are pretty fully fungible. The Gosplan allocation is made with the expectation that decision making on scientific and technological projects will be fundamentally that of the State Commission.

On the particular question of the management of Institutes, and particularly of the Kurchatov, the man to see turns out to be a Mr. Potrenko. We attempted to get an appointment with him, but he was tied up during times when we were free. He would be a useful man to ask questions of at the time of the Commission meeting in October 1975.

In order to expedite communication with the State Committee, Dvoretz urged us to use the Telex. The formal address is:

Foreign Relations Department
State Commission of USSR
Council of Ministry for Science and Technology
11 Gorky Street
Moscow

Telex number is 7241 MSK